AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1.   (Original)   A power supply that generates alternating current (AC) and direct current (DC) from a DC voltage source, comprising:

an inverter that supplies a first phase current and a second phase current to a traction motor; and

a controller that determines a first adjusted phase current based on said first phase current, determines a second adjusted phase current based on said second phase current, calculates an available current based on said first and second adjusted phase currents and generates a voltage control signal based on said available current.

2.   (Currently Amended)   The power supply of claim 1 further comprising:

a first auxiliary transformer supplied with a first auxiliary current from said ~~converter~~ inverter and having a first voltage output;

a second auxiliary transformer supplied with a second auxiliary current from said ~~converter~~ inverter and having a second voltage output; and

wherein said controller determines said first and second adjusted phase currents based on said first and second auxiliary currents.

3.   (Original)   The power supply of claim 1 wherein said controller controls said inverter based on said voltage control signal.

4.   (Original)   The power supply of claim 1 wherein said first adjusted phase current is determined by subtracting a first phase magnetized current and a total auxiliary current from said first phase current.

5.   (Original)   The power supply of claim 4 wherein said first magnetized current is determined based on a first phase voltage and a frequency.

6.   (Original)   The power supply of claim 1 wherein said second adjusted phase current is determined by subtracting a second phase magnetized current and a total auxiliary current from said second phase current.

7.   (Original)   The power supply of claim 6 wherein said second magnetized current is determined based on a second phase voltage and a frequency.

8.   (Original)   The power supply of claim 1 wherein said inverter comprises:

a first phase half bridge connected across said DC voltage source to provide said first phase current;

a second phase half bridge connected across said DC voltage source to provide said first phase current; and

a third phase half bridge connected across said DC voltage source to provide a third phase current to said traction motor.

9.   (Original)   The power supply of claim 8 wherein said inverter comprises:

a first auxiliary half bridge connected across said DC voltage source to provide a first auxiliary current;

a second auxiliary half bridge connected across said DC voltage source to provide a second auxiliary current.

10.   (Original)   A method of controlling an alternating current (AC) and direct current (DC) power supply, comprising:

determining a first adjusted phase current for a first phase current supplied to a traction motor;

determining a second adjusted phase current for a second phase current supplied to said traction motor;

calculating an available current based on said first and second adjusted phase currents; and

generating a voltage control signal based on said available current.

11.   (Original)   The method of claim 10 further comprising controlling said AC and DC power supply based on said voltage control signal.

12.   (Original)   The method of claim 10 wherein said step of determining a first adjusted phase current comprises subtracting a first phase magnetized current and a total auxiliary current from said first phase current.

13.	(Original)	The method of claim 12 wherein said first magnetized current is determined based on a first phase voltage and a frequency.

14.	(Original)	The method of claim 10 wherein said step of determining a second adjusted phase current comprises subtracting a second phase magnetized current and a total auxiliary current from said second phase current.

15.	(Original)	The method of claim 14 wherein said second magnetized current is determined based on a second phase voltage and a frequency.

16.	(Original)	The method of claim 10 wherein said first adjusted phase current is equivalent to said first phase current.

17.	(Original)	The method of claim 10 wherein said second adjusted phase current is equivalent to said second phase current.

18.	(Original)	The method of claim 10 further comprising:

generating a first auxiliary voltage signal;

generating a first auxiliary current signal; and

determining said voltage control signal based on said first auxiliary voltage signal, said first auxiliary current signal and said available current signal.

19.   (Original)   The method of claim 18 further comprising:

generating a second auxiliary voltage signal;

generating a second auxiliary current signal; and

determining said voltage control signal based on said second auxiliary voltage

signal, said second auxiliary current signal and said available current signal.

20.   (Original)   A method of regulating an alternating current (AC) and direct

current (DC) power supply having a DC source, an inverter and first and second

auxiliary transformers, comprising:

determining a first adjusted phase current for a first phase current supplied from

said inverter to a traction motor;

determining a second adjusted phase current for a second phase current

supplied from said inverter to said traction motor;

calculating an available current based on said first and second adjusted phase

currents;

generating a voltage control signal based on said available current; and

controlling said inverter based on said voltage control signal to adjust DC voltage

outputs of said first and second auxiliary transformers.

21.   (Original)   The method of claim 20 wherein said step of determining a first

adjusted phase current comprises subtracting a first phase magnetized current and a

total auxiliary current from said first phase current.

22.   (Original)   The method of claim 21 wherein said first magnetized current is determined based on a first phase voltage and a frequency.

23.   (Original)   The method of claim 20 wherein said step of determining a second adjusted phase current comprises subtracting a second phase magnetized current and a total auxiliary current from said second phase current.

24.   (Original)   The method of claim 23 wherein said second magnetized current is determined based on a second phase voltage and a frequency.

25.   (Original)   The method of claim 20 wherein said first adjusted phase current is equivalent to said first phase current.

26.   (Original)   The method of claim 20 wherein said second adjusted phase current is equivalent to said second phase current.

27.   (Original)   The method of claim 20 further comprising:
        generating a first auxiliary voltage signal;
        generating a first auxiliary current signal; and
        determining said voltage control signal based on said first auxiliary voltage signal, said first auxiliary current signal and said available current signal.

28.   (Original)   The method of claim 27 further comprising:

generating a second auxiliary voltage signal;

generating a second auxiliary current signal; and

determining said voltage control signal based on said second auxiliary voltage

signal, said second auxiliary current signal and said available current signal.